

AMENDMENTS TO THE CLAIMS

The following listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

What is claimed is:

1. (Currently Amended) A real-time monitoring apparatus for biochemical reaction, ~~which comprises~~ comprising:

a temperature control block comprising a thermoelectric element ~~[(2)]~~ capable of supplying heat into reaction tubes and a heat transmission block ~~[(3)]~~ which transmits the heat to the reaction tubes;

a light irradiation source comprising a lamp ~~[(5)]~~ which irradiates light with uniform intensity to a sample contained in at least one of the reaction tubes, a condensing lens, ~~and the an~~ an optical waveguide which has an open structure with a reflective mirror that alters light path at both ends of the optical waveguide, an infra-red cutting filter cutting infra-red from the lamp and a selective transmission filter for transmitting light selectively to monitor a reaction progress;
and

an optical system comprising a receiving part for receiving fluorescence irradiated from the sample by the light emitted from the light irradiation source.

2. (Currently Amended) The real-time monitoring apparatus according to claim 1, wherein the lamp ~~[(5)]~~ includes a first ellipsoidal reflecting mirror or a parabolic mirror.
3. (Original) The real-time monitoring apparatus according to claim 1, wherein the refractive index of medium of the optical waveguide is 1.35~2.0.
4. (Original) The real-time monitoring apparatus according to claim 1, wherein the optical waveguide has a rectangular shape.

5. (Previously Presented) The real-time monitoring apparatus according to claim 1, wherein the cross-section of the optical waveguide has a round shape.

6-10. (Canceled).

11. (Currently Amended) A real-time monitoring apparatus for biochemical reaction, ~~which comprises~~ comprising:

a temperature control block comprising a thermoelectric element ~~[(2)]~~ capable of supplying heat into reaction tubes capable of containing a sample in one or more of said reaction tubes, and a heat transmission block ~~[(3)]~~ which transmits the heat to the reaction tubes;

a light irradiation source comprising a lamp ~~[(5)]~~ which irradiates light with uniform intensity to the sample contained in the reaction tube, a condensing lens, ~~and the an~~ an optical waveguide which has an open structure with a reflective mirror that alters light path at both ends of the optical waveguide, an infra-red cutting filter cutting infra-red from the lamp and a selective transmission filter for transmitting light selectively to monitor a reaction progress; and

an optical system comprising a light receiving part for receiving fluorescence generated by the light irradiated from the light source and a second reflecting mirror ~~[(11)]~~ which alters light path.

12. (Currently Amended) The real-time monitoring apparatus according to claim 11, ~~which comprises~~ further comprising two or more ~~[[the]]~~ second reflecting mirrors ~~[(11)]~~ which ~~alters~~ alter light path.

13. (Currently Amended) The real-time monitoring apparatus according to claim 11, wherein the lamp ~~[(5)]~~ comprises an ellipsoidal mirror.

14. (Currently Amended) The real-time monitoring apparatus according to claim 11, wherein the refractive index of medium of the optical waveguide ~~[(8)]~~ is 1.35~2.0.

15. (Currently Amended) The real-time monitoring apparatus according to claim 11, wherein the optical waveguide ~~[(8)]~~ has a rectangular shape.
16. (Previously Presented) The real-time monitoring apparatus according to claim 11, wherein the cross-section of the optical waveguide has a round shape.
17. (Currently Amended) The real-time monitoring apparatus according to claim 2, wherein the lamp ~~[(5)]~~ including an ellipsoidal reflecting mirror further comprises a focusing lens.
18. (New) The real-time monitoring apparatus according to claim 1, wherein the reaction tubes are disposed on a reaction tube plate having edges and a center, and wherein the edges of the reaction tube plate receive light with at least 85% of the intensity of light received at the center of the reaction tube plate.